

IN THE CLAIMS

1. (Previously Presented) A method for transmitting packet headers in a network adapter across a network comprising:
  - storing in a host memory protocol headers and application data into packet buffers;
  - storing in a cache on the network adapter at least one MAC header; and
  - transmitting the stored protocol headers and application data and a selected MAC header across a network, wherein the transmitting includes selectively retrieving the selected MAC header from the cache or the host memory based, in part, on whether the selected MAC header was previously transmitted.
2. (Previously Presented) The method as recited in claim 1 further comprising:
  - storing in the host memory a tag indicating a location of the selected MAC header in the cache;
  - retrieving the tag; and wherein the transmitting includes accessing the selected MAC header at the location in the cache indicated by the tag.
3. (Previously Presented) The method as recited in claim 1, wherein the host memory is on a personal computer and further comprising:
  - storing the protocol headers and application data in the host memory on the personal computer; and
  - passing the selected protocol headers and application data to the network adapter using a direct memory access controller that retrieves data and headers from the host memory on the personal computer and writes the retrieved data and headers in the network adapter.
4. (Previously Presented) The method as recited in claim 3 further comprising:

determining if a MAC header is different from a MAC header previously transmitted; and

storing the MAC header in the host memory if the MAC header is different from the MAC header previously transmitted.

5. (Previously Presented) The method as recited in claim 4 further comprising, passing the MAC header in the host memory using the direct memory access controller and writing the passed MAC header in the network adapter.
6. (Original) The method as recited in claim 1 further comprising receiving the protocol headers, application data and MAC header from an operating system.
7. (Previously Presented) The method as recited in claim 3 further comprising:
  - storing a MAC header into the cache on the network adapter using a processor writing the MAC header over a personal computer bus into the cache located on the network adapter; and
  - passing the protocol headers and application data using a direct memory access controller located on the personal computer bus.
8. (Currently Amended) A computer system capable of transmitting packet headers across a network comprising:
  - a processor having and a host memory, wherein the host memory is to store protocol headers and application data into packet buffers;
  - a network adapter having a local cache capable to store at least one MAC header;
  - a DMA controller operative to pass the stored protocol headers and application data from the host memory to said network adapter; and
  - said network adapter being operative to transmit both the stored protocol headers and application data passed by the DMA controller and a selected MAC header across a network, wherein said network adapter selectively retrieves the

selected MAC header from the local cache or the host memory based, in part, on whether the selected MAC header has been previously transmitted.

9. (Currently Amended) The computer system as recited in claim 8 wherein said processor is operative to store in the host memory a tag indicating a location of the selected MAC header in the local cache and operative to retrieve the tag from host memory and pass the tag to the network adapter; and wherein said network adapter is responsive to the tag being passed by the processor to access the selected MAC header at the location indicated by the tag when transmitting the selected MAC header across a network.
10. (Previously Presented) The computer system as recited in claim 9 further comprising:
  - a personal computer having the host memory to store the protocol headers and application data; and
  - a direct memory access controller to pass the host memory protocol headers and application data to the network adapter from the host memory and to write the passed headers and data in the network adapter.
11. (Previously Presented) An article comprising:
  - storage medium having a plurality of instructions, which when executed by a processor, cause transmission of packets by:
    - storing protocol headers and application data into packet buffers in a host memory;
    - storing in a cache on a network adapter at least one MAC header;
    - and
    - transmitting the stored protocol headers and application data and a selected MAC header across a network, wherein the selected MAC header is selectively retrieved from the cache or the host memory based, in part, on whether the selected MAC header has been previously transmitted.

12. (Previously Presented) The article as recited in claim 11 further comprising instructions to store in the host memory a tag indicating a location of the selected MAC header in the cache; retrieve the tag; and wherein the instruction causing transmission of packets by transmitting the stored protocol headers and application data and a selected MAC header across a network includes instructions to access the selected MAC header at the location in the cache indicated by the tag.
13. (Previously Presented) The article as recited in claim 11 further comprising instructions to:
- store the protocol headers and application data in the host memory on a personal computer; and
  - pass the host memory protocol headers and application data to the network adapter using a direct memory access controller that retrieves data and headers from the host memory and writes the retrieved data in the network adapter.
14. (Previously Presented) The article as recited in claim 13 further comprising instructions to:
- determine if a MAC header is different from a MAC header previously transmitted; and
  - store the MAC header in the host memory if the MAC header is different from the MAC header previously transmitted.
15. (Original) The article as recited in claim 14 further comprising instructions to pass the MAC header in host memory using the direct memory access controller and write the retrieved MAC header in the network adapter.
16. (Original) The article as recited in claim 11 further comprising instructions to receive the protocol headers, application data and MAC header from an operating system.
17. (Previously Presented) The article as recited in claim 13 further comprising instructions to:

store a MAC header into the cache on the network adapter using a processor writing the MAC header over a personal computer bus into the cache located on the network adapter; and  
pass the protocol headers and application data using a direct memory access controller located on the personal computer bus.

18-20 (Cancelled)

21. (Original) An adapter apparatus for transmitting packet headers, stored in a host memory of a computer as a protocol header and application data, across a network comprising:

a network controller having a cache to store at least one MAC header, said network controller transmitting the stored protocol header and application data and a selected MAC header across a network, wherein the transmitting includes selectively retrieving the selected MAC header from the cache or the host memory based, in part, on whether the selected MAC header has been previously transmitted.

22. (Original) The adapter apparatus as recited in claim 21 wherein said network controller retrieves a tag from host memory, wherein the tag indicates the location of the selected MAC header in the cache; and wherein said network controller accesses the selected MAC header at the location indicated by the tag to transmit the MAC header across the network.

23. (Original) The adapter apparatus as recited in claim 21 further comprising a direct memory access controller to retrieve the host memory protocol headers and application data and to write the retrieved headers and data in the network controller.

24. (Original) The adapter apparatus as recited in claim 23 wherein the network controller determines if a MAC header is different from a MAC header previously transmitted and

stores the MAC header in the host memory if the MAC header is different from the MAC header previously transmitted.

25. (Original) The method of Claim 1, wherein the retrieving comprises retrieving the selected MAC header from the cache if the selected MAC header has been previously transmitted and retrieving the selected MAC header from the host memory if the selected MAC header has not been previously transmitted.

26. (Currently Amended) The computer system of Claim 8, wherein said network adapter retrieves the selected MAC header from the local cache if the selected MAC header has been previously transmitted and retrieves the selected MAC header from the host memory if the selected MAC header has not been previously transmitted.

27. (Original) The article of Claim 11, wherein the instructions, which when executed by a processor, cause transmission of packets by transmitting the stored protocol headers and application data and a selected MAC header across a network comprises instructions to retrieve the selected MAC header from the cache if the selected MAC header has been previously transmitted and to retrieve the selected MAC header from the host memory if the selected MAC header has not been previously transmitted.

28. (Cancelled)

29. (Original) The adapter apparatus of Claim 21, wherein the network controller is to retrieve the selected MAC header from the cache if the selected MAC header has been previously transmitted and to retrieve the selected MAC header from the host memory if the selected MAC header has not been previously transmitted.

30. (New) A system comprising:  
                     a host system comprising:  
                                     a processor, and

a host memory to store protocol headers and application data into packet buffers;  
a network adapter comprising:  
a local cache capable to store at least one MAC header, and  
logic to transfer the stored protocol headers and application data from the host memory to said network adapter, wherein said network adapter is operative to transmit both the stored protocol headers and application data passed by the logic to transfer and a selected MAC header across a network and wherein said network adapter selectively retrieves the selected MAC header from the local cache or the host memory based, in part, on whether the selected MAC header has been previously transmitted;  
and  
a bus to communicatively couple the network adapter with the host system.

31. (New) The system of Claim 30, wherein the network adapter includes logic to retrieve the selected MAC header from the cache if the selected MAC header has been previously transmitted and to retrieve the selected MAC header from the host memory if the selected MAC header has not been previously transmitted.

32. (New) The system of Claim 30, further comprising a router communicatively coupled to the network adapter.